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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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James R. Hochstein JR.

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EXAMINER

NDUBIZU, CHUKA CLEMENT

ART UNIT

PAPER NUMBER

3743

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/733,889	Applicant(s) HOCHSTEIN ET AL.	
	Examiner CHUKA C. NDUBIZU	Art Unit 3743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 September 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 10-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 16-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

Applicant's amendment filed on September 2 2008 is acknowledged.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1, 4, 6-8, 19, 21, 23, 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Gray et al 4,624,635 Gray teaches the invention as claimed (fig 1) (claims 1, 7 and 23) an apparatus for pulse jet combustion capable of being used for cleaning a surface (column 4 lines 45-46) by directing the exit flow at 52 on the heat exchangers within a vessel having a vessel wall separating a vessel exterior from a vessel interior and having a wall aperture, the apparatus comprising: a source of fuel 84 and oxidizer 44 (fig 1); an igniter 42 for initiating reaction of the fuel and oxidizer; and an elongate conduit (fig 1) having a first end 46 and a second end (end of 52) comprising a plurality of segments 46, 48, between 48 and 50, 50, 52, secured end to end, and positioned to direct a gas flow of the reacted or reacting fuel and oxidizer through a wall aperture (at 10') and discharge from the second end 52 and (claim 1) damping means 24 for absorbing reaction forces associated with said reacted fuel and oxidizer and said

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discharge (column 3 lines 1-4); wherein said conduit comprises at least three portions; a first portion 50; a second portion 48 upstream of the first portion; and a third portion between the first and second portions (between 48 and 50); wherein the first and second portions have an essentially uniform internal cross-section along their respective lengths (see fig 1); and wherein the third portion includes: a downstream portion (near 60) having an internal cross-section essentially similar to the internal cross-section of the first portion 50; an upstream portion (opposite end) having an internal cross-section essentially similar to the internal cross-section of the second portion 48 and smaller than the internal cross-section of the downstream portion (see fig 1); and a transition portion having an internal cross-section that transitions from essentially similar to the internal cross-section of the upstream portion to essentially similar to the internal cross-section of the downstream portion (see fig 1); (claim 4) a nozzle assembly extending at least partially through a vessel wall (52 extends through 10'); (claim 6) wherein the conduit comprising essentially of three portions; an essentially straight first portion 50; an essentially straight second portion 46, upstream of the first and a third non-straight portion 48 in between the two; (claim 8, 19) wherein the first 50 and second portions 46 are offset (fig 1); (claim 21) wherein said damping means is a reaction strut 30 disposed in series with at least one coil reaction spring 24, coupled at one end to a mated flange pair 56, 54 of said segments and coupled at the opposite end to a rigid structure 16; (claim 26) wherein the mated flange pair is a last mated flange pair (there is only one).

In claims 1 and 23, the recitations "An apparatus for cleaningcomprising" is given little patentable weight because the recitation occurs in the preamble. A preamble

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is generally not accorded any patentable weight where it merely recites the purpose of a process the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951) MPEP 2111.02 ii..

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
2. Claims 3, 5, 16-18, 20, 22, 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gary et al in view of Jennings et al 2,972,502. Gary's apparatus is a combustor that sends detonation waves like the Applicant's. It is used to solve a problem of removing particulates that stick to walls (column 4 lines 43-46), which is similar to the problem (sticking soot particulates) the applicant is addressing. Gary

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teaches the invention as claimed (fig 1), (claims 3, 25) the apparatus wherein: two of the segments 46 and 48 each comprise: a tubular body having first and second ends; and first 54 and second 56 attachment flanges proximate the first and second ends, respectively; (claim 16) a nozzle assembly extending at least partially through a vessel wall (52 extends through 10'); wherein a first 46 of the segments is parallel and offset from a second 50 of the segments (fig 1).

3. However Gary does not teach, (claim 5) more than one flange between the segments; and (claim 17, 18) at least one of the segments being an elbow; (claim 22) wherein said structure is said vessel.

Jennings et al teaches a soot blower (see fig 9B) comprising, a conduit having several segments with flanges attached to the ends (see fig 9B); wherein at least one of the segments is an elbow (see fig 9B).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Gary's conduit by including two elbows connected with flanges to make the U of 48 in order to provide a U shaped segment that can be dismantled and cleaned easily.

With regard to claim 22 "the structure being said vessel" is deemed a statement of intended use. Gary's combustor is capable of being mounted anywhere, on the vessel or on another structure like in Fig 1, and the exhaust from 52 can be used to dislodge particulates that are sticking on a wall (column 4 lines 43-46).

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4. Claims 2, 24 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gary in view of Hunter 5,494,004. Gary teaches the invention as claimed and as discussed above.

However, Gary does not teach at least three of the conduits being 1-3 m and the characteristic internal cross-sectional areas being about 0.006-0.3 m²; and the first and second portions being oriented at an angle of 20-160 degrees.

Gary disclosed that the first 46 and second 50 portions are oriented at an angle of 180 degrees. Hunter discloses a soot cleaning apparatus where the first 21 and second 31 portions can be oriented at an angle between 0 and 180 degrees to each other, since the member 31 can rotate to clean the wall 360 degrees about the opening 81 (column 3 line 30-34). Hunter also discloses that the second portion cross-sectional area is greater than 0.005 m² (column 6 line 62) and the two portions have a length of about 7 ft (2.15 m) (column 5 line 15). Gary's invention can be adapted to clean soot and the angle can be made less than 180 degrees depending on where the vessel is located. Therefore, the limitations in claims 2 and 9 are matters of optimization within prior art conditions, which will be obvious to one of ordinary skill in the art; "where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) MPEP 2144.05 II A.

Response to Arguments

Applicant's arguments with respect to claims 1-9, 16-26 have been considered but are moot in view of the new grounds of rejection. Gary discloses segments secured end to end. Gary's conduit can be adapted to clean heat exchangers. Gary teaches damping means as discussed above.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHUKA C. NDUBIZU whose telephone number is (571)272-6531. The examiner can normally be reached on Monday - Friday 8.30 - 4.30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Rinehart can be reached on 571-272-4881. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Chuka C Ndubizu/
Examiner, Art Unit 3743

/Kenneth B Rinehart/
Supervisory Patent Examiner, Art
Unit 3743

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